REMARKS

This responds to the final Office Action mailed on <u>August 19, 2008</u>.

Claims 1, 20, 32, and 39 have been amended herein and no claims have been canceled or added. As a result, claims 1-43 are still pending in this application.

35 U.S.C. §102 Rejection of the Claims

Claims <u>1-6, 17-25, 32-34 and 39-42</u> were rejected under 35 U.S.C. § 102(e) as being anticipated by *Barratt et al.* (U.S. Patent No. 6,185,440 A1) (hereinafter Barrett).

Independent claims 1, 20, 32, and 39 have been amended herein to clarify the scope of the respective subject matter. More specifically, these claims have been amended to make it clearer that an "orthogonal set" is a set of <u>user devices</u> that can be transmitted to concurrently by an access point "using spatial division multiple access (SDMA)" or "in a spatial division multiple access (SDMA) mode of operation." Therefore, an "orthogonal set," as that term is used in the claims (and in the specification), does not encompass CDMA based arrangements as stated by the Examiner in the Response to Arguments section of the final office action. In view of the claim language and the specification, it is submitted that there is no reasonable interpretation of the phrase "orthogonal set" in the claims that would encompass CDMA. Thus, Barrett does not disclose or suggest "identifying a plurality of orthogonal sets of user devices in a cell of a wireless network, wherein each orthogonal set in said plurality of orthogonal sets includes multiple user devices that can be transmitted to concurrently by an access point using different antenna beams in a spatial division multiple access (SDMA) mode of operation."

The independent claims have also been amended to clarify that the set selected in "selecting an orthogonal set" is "for use in transmitting data to the corresponding user devices." Barrett does not disclose or suggest selecting an orthogonal set for this purpose. First of all, as stated above, the claimed "orthogonal sets" do not encompass sets that are transmitted to using CDMA techniques. In addition, Barrett does not describe selecting a set "for use in transmitting data to the corresponding user devices." That is, the method of Barrett sequences through a series of weight vectors (i.e., sequentially) to, over time, achieve omnidirectional coverage. Barrett is not selecting one particular weight vector that encompasses a known set of user devices to transmit to those user devices.

In the "Response to Arguments" section of the final office action, the Examiner takes the position that Barratt discloses "selecting an orthogonal set" because it shows "the use of weighting vectors and than [*sic*] iteratively determines a smaller set of weight vectors which are representative of the weight vectors." The Examiner is apparently viewing the "set" of weight vectors from Barrett as the claimed "orthogonal set". However, the claim recites "selecting an orthogonal set from the plurality of orthogonal sets for use in transmitting data to the corresponding user devices based on a predetermined selection criterion." It is submitted that there is no reasonable interpretation of this language, especially when read in light of the specification, that would encompass the set of weight vectors of Barrett.

Barrett does disclose the use of SDMA, but it does not disclose "initiating, after selecting, an SDMA exchange for the selected orthogonal set." The orthogonal set is being selected "for use in transmitting data to the corresponding user devices." The corresponding user devices being the devices associated with the selected set. As described above, the Examiner takes the position that the set of weight vectors of Barrett is an "orthogonal set" as that term is used in the claims. However, the set of weight vectors of Barrett covers the entire coverage area of the corresponding base station (i.e., the base station sequences through the set). Therefore, there is no reasonable interpretation of the language of the "initiating" element that would encompass transmission to the set of weight vectors of Barrett.

Based on the foregoing, it is submitted that independent claims 1, 20, 32, and 39 are allowable over Barrett. Reconsideration and allowance of these claims is therefore respectfully requested. No new matter has been added to these claims.

Claims 2-6 and 17-19, claims 21-25, claims 33-34, and claims 40-42 are dependent claims that depend either directly or indirectly from independent claims 1, 20, 32, and 39, respectively. Consequently, these claims are allowable for at least the same reasons as their corresponding base claims. These claims also provide further bases for patentability. For example, claim 2 further defines "selecting an orthogonal set" of claim 1 as including "selecting a set based on an amount of data that is buffered for delivery to user devices within each of said identified orthogonal sets." Barratt does not teach selecting an orthogonal set from a plurality of orthogonal sets of user devices based on an amount of data that is buffered for delivery to user devices within each of the identified orthogonal sets. The examiner takes the position that

Barratt discloses this in column 16, lines 11-16 because "a 'weight' can be user defined criterion and therefore amount of data can be one such 'weight' vector." However, this passage in Barratt states nothing about a weight being user defined and, even if it did, it is irrelevant because a "weight" is not the same thing as an orthogonal set of user devices. A weight vector is a data structure used to form an antenna pattern (see, for example, column 7, lines 7-14). A similar argument applies to claims 22 and 33. Claim 3 further defines "selecting an orthogonal set" of claim 1 as including: (a) determining a maximum duration for the SDMA exchange; (b) evaluating orthogonal sets in said plurality of orthogonal sets to determine an amount of data that is buffered for said orthogonal sets; and (c) selecting an orthogonal set that has a largest amount of buffered data that can be delivered within said maximum duration of said SDMA exchange. Claim 3 is allowable for similar reasons to claim 2 above. A similar argument applies to claim 23.

Claim 4 further defines "selecting an orthogonal set" of claim 1 as including "using quality of service (QOS) information as part of said predetermined selection criterion." Barratt does not disclose the use of QOS information as a selection criterion in the selection of an orthogonal set of user devices from the plurality of orthogonal sets. The Examiner takes official notice that the use of QOS is known in wireless and wireline communications; but even if this is true, the Examiner still has not shown prior art showing the use of QOS information being used as a selection criterion in the selection of an orthogonal set of user devices. Claim 5 further defines "selecting an orthogonal set" of claim 1 as including "using latency related information as part of said predetermined selection criterion." Barratt does not disclose the use of latency related information as a selection criterion in the selection of an orthogonal set of user devices from a plurality of orthogonal sets. The Examiner takes the position that Barratt discloses this in column 20 lines 31-46; however, this passage does not describe the use of latency related information as such a selection criterion. Claim 6 further defines "initiating an SDMA exchange" of claim 1 as including "simultaneously transmitting data to user devices in said selected orthogonal set, using corresponding antenna beams, so that a terminal end of the data transmitted to each user device occurs at substantially the same time." This is not shown in Barratt. Substantially the same argument applies to claims 25, 34, and 42.

Claim 17 further defines "initiating an SDMA exchange" of claim 1 as including "transmitting a training request packet to a first user device within the selected orthogonal set." Barratt does not disclose the initiation of an SDMA exchange that includes transmitting a training request packet to a user device within a selected orthogonal set. As described previously, Barratt does not disclose the selection of an orthogonal set of user devices or the initiation of an SDMA exchange for a selected set. Likewise, Barratt does not disclose the transmission of a training request packet to a user device within a selected set. The Examiner takes the position that a weight can be designated as a training request packet. The Applicant does not understand what this means and respectfully requests that the Examiner explain this argument in more detail in the next official communication. A similar argument applies to claim 19. Claim 18 further defines the "training request packet" of claim 17 as being "transmitted using an antenna beam that encompasses substantially an entire coverage region of the access point." Barratt does not disclose this.

35 U.S.C. §103 Rejection of the Claims

Claims 7-11, 13, 14, 16, 26, 27, 29-31, 35-38 and 43 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Barratt* (U.S. Publication No. 2005/0141407 A1) in view of *Kasami et al.* (U.S. Publication No. 2002/0181492 A1).

Claims 7-11, 13-14, and 16; claims 26-27 and 29-31; claims 35-38; and claim 43 are dependent claims that depend either directly or indirectly from independent claims 1, 20, 32, and 39, respectively. Consequently, these claims are allowable for at least the same reasons as their corresponding base claims. These claims also provide further bases for patentability. For example, claim 8 further defines "initiating an SDMA exchange" of claim 1 as including "simultaneously transmitting data to user devices in said selected orthogonal set using corresponding antenna beams" and "transmitting an acknowledgement (ACK) request to each user device in said selected orthogonal set after said data has been transmitted." Neither Barratt nor Kasami teach or suggest the transmission of ACK requests after transmitting data to user devices in a selected orthogonal set. The Examiner refers to paragraph 126 of Kasami, but this paragraph states nothing about ACK requests (it only mentions a transmission request). A similar argument applies to claim 35. Claim 9 further defines "transmitting an ACK request" of

claim 8 to include "transmitting a separate ACK request to each user device in said selected orthogonal set using a corresponding antenna beam." Again, neither Barrat nor Kasami teach or suggest the transmission of ACK requests after transmitting data to user devices in a selected orthogonal set. The Examiner refers to paragraphs 6, 9, 65-69, and 106-109, but these paragraphs refer only to ACK packets, not ACK requests. Similar arguments apply to claims 10, 11, 13, 14, 29, 30, 36, 37, and 43.

Allowable Subject Matter

Claims 12, 15, 17-19 and 28 were objected to as being dependent upon a rejected base claim, but were indicated to be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. These claims have not be rewritten herein as it is believed that the independent claims are in form for allowance as set out above.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney (480-948-3745) to facilitate prosecution of this application.

Respectfully submitted,

ADRIAN P. STEPHENS ET AL.

By their Representatives,

CUSTOMER NUMBER: 45643
480-948-3745

Date: <u>October 20, 2008</u>   By _____

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Mail Stop AF, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this <u>20th</u> day of <u>October 2008.</u>

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Shellie Bailey